

INDEX TO SURGICAL PROGRESS.

GENERAL SURGERY.

I. Experimental Investigations in the Infection of Wounds. By Dr. SCHIMMELBUSCH (Berlin). Experimental studies of wound-infection are carried out with difficulty because the exciting causes of the infection do not operate the same upon animals as upon man. It is possible, however, to transfer the staphylococci and streptococci from phlegmonous processes in man to rabbits, guinea-pigs, and mice, and in them cause a phlegmonous inflammation.

The causes of inflammations in the wounds of animals have been studied separately by the veterinary physicians. It is interesting that the bacteria which cause the wound-inflammation in the horse, cow, and other animals, are different from those which cause inflammations in man ; and each species of animals seems to have a peculiar variety of bacteria of its own.

Suppuration in recent and old wounds, eczema, etc., occurs spontaneously in rabbits, rats, and mice, due to special organisms. There are bacteria which, even in the smallest numbers, will cause phlegmon in rabbits. They are bacilli which have nothing to do with the pyogenic organisms found in man ; though they are capable in these animals of causing an extensive inflammatory process which may lead to death.

Septic bacteria are rapidly absorbed from fresh wounds. If a mouse is inoculated with anthrax at the tip of its tail, amputation of the tail, after ten minutes, does not save the animal.

Richter has shown that the anthrax bacillus is found in the lungs, liver, kidneys, and spleen, half an hour after such an inoculation. A large number of experiments with pathogenic and non-pathogenic organisms have shown that in five minutes after bacteria are in-

roduced into a fresh wound they can be found in the internal viscera.

Old wounds and burns do not absorb bacteria so rapidly.—*Verhandlungen der deutschen Gesellschaft für Chirurgie*, XXIII Kongress, 1894.

II. On the Disinfection of Fresh Wounds. By Dr. HENLE (Breslau). Schimmelbusch's observations confirm those of Henle. The former has introduced finely-powdered cinnabar in fresh wounds in the tail of the mouse and the ear of the rabbit, and found that after five minutes the particles of the metal had passed into the lymph-channels, and were far beyond the reach of antiseptic fluids. The experiments demonstrate the usefulness of antiseptics in septic infections.

The experiments of Schimmelbusch were carried out with highly virulent organisms,—pure cultures in large amounts. He has not thus represented the natural conditions. The difference in the virulence of different bacteria rests in the resistance of the organism against the tissues of the body. Some can develop alone in the juices of the body, and others thrive when they have caused the destruction of a given area, or have found a *locus minoris resistentiæ*. Every wound is in a greater or lesser degree a *locus minoris resistentiæ*, and invites the colonization of bacteria which have not a high degree of virulence. Microscopic examination of the wounds in rabbits' ears, which had been infected with streptococcus pus, showed a migration of the organisms into the lymph-channels only after six hours have elapsed.

Henle concludes that an antiseptic irrigation of a wound is a proper surgical procedure. He infected rabbits' ears with streptococcus pus, and irrigated the wounds with 1 : 1000 mercuric solution, or 4-per-cent. carbolic. The disinfection had a full effect two hours after the infection. When employed six hours after, the severity of the infection was greatly diminished. In these cases one ear was infected and used as a control wound.—*Verhandlungen der deutschen Gesellschaft für Chirurgie*, XXIII Kongress, 1894.